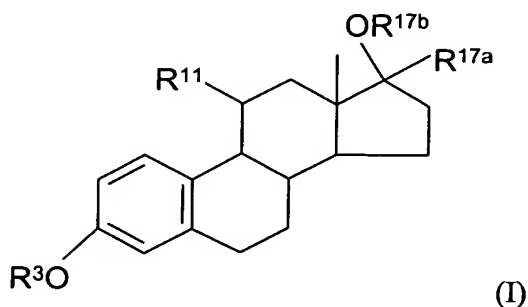


This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims:

1. (Currently Amended) ~~11 β -Long chain substituted estratrienes of general A~~
compound of formula I



in which

R³ means a hydrogen atom, a hydrocarbon radical with up to 8 carbon atoms or a radical of partial formula R^{3'}--C(O)--, in which R^{3'} means a hydrogen atom or a hydrocarbon radical with up to 8 carbon atoms or a phenyl radical,

R¹¹ means a radical of formula -A-B-Z-R²⁰,

in which

A stands for a direct bond, and

B stands for a straight-chain or branched-chain alkylene, alkenylene or alkynylene group with 4, 5 or 6 carbon atoms, or

~~A stands for a phenylene radical, and~~

~~B stands for a methylene, ethylene, propylene or trimethylene group, or~~

~~A stands for a phenylenoxy radical, whereby the latter is bonded via a carbon atom to the 11 carbon atom of the steroid, and~~

~~B stands for an ethylene group,~~

Z stands for $\text{-NR}^{21}\text{-}$ and R^{21} stands for a $\text{C}_1\text{-C}_3$ alkyl group,

whereby R^{20} means

a hydrogen atom,

a straight-chain or branched-chain alkyl, alkenyl or alkynyl group with up to 10 carbon atoms,

whereby if A is a direct bond, R^{20} and R^{21} do not both simultaneously mean methyl, however, and, if A is a phenylenoxy radical, R^{20} and R^{21} do not both simultaneously mean methyl or ethyl, and if A is a phenylenoxy radical and B means an ethylene group, OR^{17b} should not be a hydroxy group and R^{17a} should not be a C_{1-4} alkyl group, and R^3 should not be a hydrogen atom,

or one of groupings

$\text{-D-C}_n\text{F}_{2n+1}$, whereby D is a straight-chain or branched-chain alkylene, alkenylene or alkynylene group with up to 8 carbon atoms and n is an integer from 1 to 8,

D-aryl, whereby D has the already indicated meaning, and aryl stands for a phenyl, 1- or 2-naphthyl radical or a heteroaryl radical that is optionally substituted in one or two places,

$\text{-L-CH=CF-C}_p\text{F}_{2p+1}$, whereby L is a straight-chain or branched-chain alkylene, alkenylene or alkynylene group with up to 7 carbon atoms and p is an integer from 1 to 7,

whereby in the three cases above in D or L, a methylene group can be replaced by a sulfur atom, a sulfone group or a sulfoxide group,

-D-O-(CH₂)_q-aryl, whereby D and aryl have the already indicated meanings, and q is 0, 1, 2 or 3,

-D-O-(CH₂)_r-C_nF_{2n+1}, whereby D and n have the already indicated meanings, and r stands for an integer from 1 to 5,

whereby in addition in all relevant cases above, R²¹ together with D with the inclusion of the nitrogen atom can then form a pyrrolidine ring that is substituted in 2- or 3-position,

or

if A is a direct bond or a phenylene radical,

R²⁰ and R²¹ with the nitrogen atom to which they are bonded form a saturated or unsaturated heterocyclic compound with 5 or 6 chain links, which optionally contains one or two additional heteroatoms, selected from nitrogen, oxygen and sulfur, and optionally is substituted,

whereby if A is a phenylene radical and B is a trimethylene radical, R²¹ and R²⁰ do not form a methyl or ethyl group, or, together with the nitrogen atom to which they are bonded, do not form a pyrrolidine or piperidine ring,

and

R^{17a} ~~R^{17a}~~ in α - or β -position means a hydrogen atom, a C₁₋₅ alkyl, a C₂₋₅ alkenyl or a C₂₋₅ alkynyl group or a trifluoromethyl group, or together with the radical OR^{17b} means a keto-oxygen atom, and

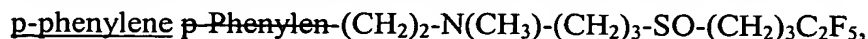
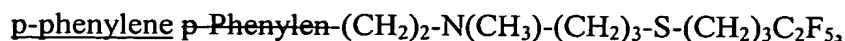
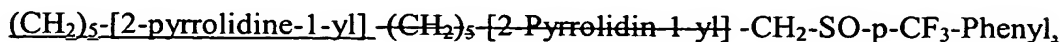
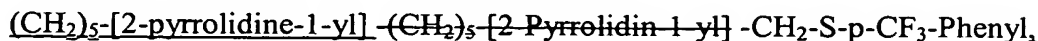
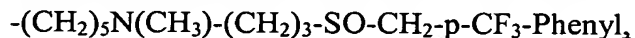
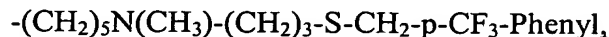
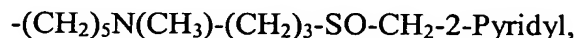
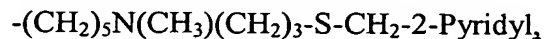
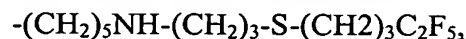
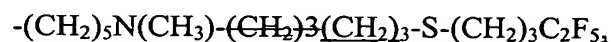
R^{17b} ~~R^{17b}~~ means a hydrogen atom or a radical of partial formula R^{17'}--C(O)--, in which R^{17'} means a hydrogen atom or a hydrocarbon radical with up to 8 carbon atoms.

2. (Currently Amended) An 11 β -substituted estratriene ~~Substituted estratrienes~~
according to claim 1, in which R³ is a hydrogen atom.

3. (Currently Amended) An 11 β -substituted estratriene ~~Substituted estratrienes~~
according to claim 1, in which R³ is a benzoyl radical.

4. (Currently Amended) An 11 β -substituted estratriene ~~Substituted estratrienes~~
according to claim 1, in which R^{17b} is a hydrogen atom.

5. (Currently Amended) An 11 β -substituted estratriene ~~Substituted estratrienes~~
according to claim 1, in which R¹¹ is selected from the group of the following side chains



p-phenylene ~~p-Phenylene~~-(CH₂)₂-N(CH₃)-(CH₂)₃-S-CH₂-2-Pyridyl,
p-phenylene ~~p-Phenylene~~-(CH₂)₂-N(CH₃)-(CH₂)₃-SO-CH₂-2-Pyridyl,
p-phenylene ~~p-Phenylene~~-(CH₂)₂-N(CH₃)-(CH₂)₃-S-CH₂-p-CF₃-Phenyl,
p-phenylene ~~p-Phenylene~~-(CH₂)₂-N(CH₃)-(CH₂)₃-SO-CH₂-p-CF₃-Phenyl,

-(CH₂)₅N(CH₃)(CH₂)₃C₂F₅,
 -(CH₂)₅N(CH₃)(CH₂)₆C₂F₅,
 -(CH₂)₅N(CH₃)(CH₂)₇C₂F₅,
 -(CH₂)₅N(CH₃)(CH₂)₈C₂F₅,
 -(CH₂)₆N(CH₃)(CH₂)₆C₂F₅,
 -(CH₂)₆N(CH₃)(CH₂)₇C₂F₅,
 -(CH₂)₆N(CH₃)(CH₂)₈C₂F₅,
 -(CH₂)₅N(CH₃)(CH₂)₂C₄F₉,
 -(CH₂)₅N(CH₃)(CH₂)₃C₆F₁₃,
 -(CH₂)₅N(CH₃)(CH₂)₃C₈F₁₇,
 -(CH₂)₅N(CH₃)(CH₂)₆C₄F₉,
 -(CH₂)₅N(CH₃)(CH₂)₆C₆F₁₃,
 -(CH₂)₅N(CH₃)(CH₂)₆C₈F₁₇,
 -(CH₂)₅N(CH₃)H,
 -(CH₂)₅N(CH₃)(CH₂)₉H,
 -(CH₂)₅N(CH₃)CH₂CH=CF-C₂F₅,
 -(CH₂)₅N(CH₃)CH₂CH=CF-C₃F₇,
 -(CH₂)₅N(CH₃)CH₂CH=CF-C₅F₁₁,
 -(CH₂)₅N(CH₃)CH₂CH=CF-C₇F₁₅,
 -(CH₂)₅-1-Pyrrolidinyl,
 -(CH₂)₅N(CH₃)(CH₂)₃OPhenyl,
 -(CH₂)₅N(CH₃)(CH₂)₃OBenzyl,
 -(CH₂)₅N(CH₃)(CH₂)₃O(CH₂)₃C₂F₅,
 -(CH₂)₅N(CH₃)(CH₂)₃CH(CH₃)₂,
 -(CH₂)₅N(CH₃)(CH₂)₃-Pyridyl,
 -(CH₂)₅N(CH₃)(CH₂)₃-Phenyl,
 -(CH₂)₅N(CH₃)(CH₂)₂-p-Tolyl,
 -(CH₂)₅N(CH₃)(CH₂)₂-p-Ethoxyphenyl,

$-(\text{CH}_2)_5\text{N}(\text{CH}_3)(\text{CH}_2)_3\text{-p-Tolyl}_1$
 $-(\text{CH}_2)_5\text{N}(\text{CH}_3)(\text{CH}_2)_3\text{-p-Chlorophenyl}_1$ or
 $-(\text{CH}_2)_5\text{N}(\text{CH}_3)(\text{CH}_2)_3\text{-O-CH}_2\text{-Phenyl}_1$

{Key:}

~~$-(\text{CH}_2)_5\text{-[2-Pyrrolidin-1-yl]} \dots = (\text{CH}_2)_5\text{-[2-pyrrolidine-1-yl]} \dots$~~

~~$\text{p-Phenylene} \dots = \text{p-phenylene} \dots$~~

6. (Currently Amended) ~~11 β -Long-chain-substituted estratrienes of general formula I,~~ namely A compound of claim 1 which is

11 β -[5-(Methyl{3-[(4,4,5,5,5-pentafluoropentyl)sulfanyl]-propyl}amino)pentyl]estra-1,3,5(10)-triene-3,17 β -diol₁

11 β -(5-{3-[(4,4,5,5,5-pentafluoropentyl)sulfanyl]-propylamino}pentyl)estra-1,3,5(10)-triene-3,17 β -diol₁

11 β -[5-(methyl{3-[(2-pyridylmethyl)sulfanyl]propyl}-amino)pentyl]estra-1,3,5(10)-triene-3,17 β -diol₁

11 β -[5-(methyl{3-[(2-pyridylmethyl)sulfinyl]propyl}-amino)pentyl]estra-1,3,5(10)-triene-3,17 β -diol₁

11 β -[5-(methyl{3-[4-(trifluoromethyl)benzylsulfanyl]-propyl}amino)pentyl]estra-1,3,5(10)-triene-3,17 β -diol₁

11 β -[5-(methyl{3-[4-(trifluoromethyl)benzylsulfinyl]propyl}-amino)pentyl]estra-1,3,5(10)-triene-3,17 β -diol₁

11 β -{5-[(2S)-2-{[4-(trifluoromethyl)phenyl]sulfanyl-methyl}pyrrolidine-1-yl]pentyl}estra-1,3,5(10)-triene-3,17 β -diol₁

11 β -{5-[(2S)-2-{[4-(trifluoromethyl)phenyl]sulfinyl-methyl}pyrrolidine-1-yl]pentyl}estra-1,3,5(10)-triene-3,17 β -diol₁

11 β -{4-[2-(methyl{3-[(4,4,5,5,5-pentafluoropentyl)sulfanyl]-propyl} amino)ethyl]phenyl}estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{4-[2-(methyl{3-[(4,4,5,5,5-pentafluoropentyl)sulfinyl]-propyl} amino)ethyl]phenyl}estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{4-[2-(methyl{3-[(2-pyridylmethyl)sulfanyl]propyl}-amino)ethyl]phenyl}estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{4-[2-(methyl{3-[(2-pyridylmethyl)sulfinyl]propyl}-amino)ethyl]phenyl}estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{4-[2-(methyl{3-[4-(trifluoromethyl)benzylsulfanyl]-propyl} amino)ethyl]phenyl}estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{4-[2-(methyl{3-[4-(trifluoromethyl)benzylsulfinyl]propyl} amino)ethyl]phenyl}estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[methyl-(8,8,9,9,9-pentafluoro-nonyl)amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[methyl-nonyl-amino]pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[methyl-(9,9,10,10,10-pentafluoro-decyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{6-[methyl-(8,8,9,9,9-pentafluoro-nonyl)-amino]-hexyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{6-[methyl-(9,9,10,10,10-pentafluoro-decyl)-amino]-hexyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -[5-(methyl-amino)-pentyl]-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -(5-pyrrolidine-1-yl-pentyl)-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[methyl-(4,4,5,5,5-pentafluoro-pentyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[methyl-(4,4,5,5,6,6,7,7,8,8,9,9,9-tridecafluoro-nonyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[(4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,11-heptadecafluoro-undecyl)-methyl-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[methyl-(3,3,4,4,5,5,6,6,6-nonafluoro-hexyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[methyl-(7,7,8,8,8-pentafluoro-octyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{6-[methyl-(7,7,8,8,8-pentafluoro-octyl)-amino]-hexyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[methyl-(7,7,8,8,9,9,10,10,10-nonafluoro-decyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[methyl-(7,7,8,8,9,9,10,10,11,11,12,12,12-tridecafluoro-dodecyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[(7,7,8,8,9,9,10,10,11,11,12,12,13,13,14,14,14-heptadecafluoro-tetradecyl)-methyl-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[(3,4,4,5,5,5-hexafluoro-pent-2-enyl)-methyl-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[(3,4,4,5,5,6,6,7,7,8,8,8-dodecafluoro-oct-2-enyl)-methyl-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11 β -{5-[(3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-hexadecafluoro-dec-2-enyl)-methyl-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,

11β -{5-[methyl-(3-phenoxy-propyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,
 11β -{5-[(3-benzyloxy-propyl)-methyl-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -
 diol,
 11β -{5-[N-methyl-N-3-(4,4,5,5,5-pentafluoropentyloxy)-propylamino]-pentyl}-estra-
 1,3,5(10)-triene-3,17 β -diol,
 11β -[9-(4,4,5,5,5-pentafluoropentylsulfinyl)-nonyl]-estra-1,3,5(10)-triene-3,17 β -diol,
 11β -{5-[methyl-(2-p-tolyl-ethyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,
 11β -(5-{[2-(4-ethoxy-phenyl)-ethyl]-methyl-amino}-pentyl)-estra-1,3,5(10)-triene-
 3,17 β -diol,
 11β -{5-[methyl-(3-phenyl-propyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,
 11β -{5-[methyl-(3-pyridin-3-yl-propyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -
 diol,
 11β -{5-[methyl-(3-p-tolyl-propyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol,
 11β -(5-{[3-(4-chloro-phenyl)-propyl]-methyl-amino}-pentyl)-estra-1,3,5(10)-triene-
 3,17 β -diol,
 11β -(5-{[3-(4-ethoxy-phenyl)-propyl]-methyl-amino}-pentyl)-estra-1,3,5(10)-triene-
 3,17 β -diol, or
 11β -{5-[methyl-(4-methyl-pentyl)-amino]-pentyl}-estra-1,3,5(10)-triene-3,17 β -diol.

7. (Currently Amended) A pharmaceutical agent comprising a 11β -long-chain-
substituted estratriene according to claim 1. ~~Use of the compounds of general formula I~~
~~according to claim 1 for the production of pharmaceutical agents.~~

8. (Currently Amended) A pharmaceutical composition comprising ~~Pharmaceutical preparations that contain~~ at least one compound of general formula I according to claim 1 ~~as well as~~ and a pharmaceutically compatible vehicle.

Please add the following new claims:

--9. (New) An 11β -substituted estratriene according to claim 1, wherein R^{17a} is a methyl, an ethenyl or an ethynyl.

10. (New) An 11β -substituted estratriene according to claim 1, wherein R^{17a} is in the α -position.

11. (New) A method of providing an antiestrogenic action comprising administering an effective amount of ~~an 11β -long chain-substituted estratriene~~ a compound according to claim 1.

12. (New) A method of treating tumors comprising administering an effective amount of a compound according to claim 1.

13. (New) A method of treating breast cancer, endometrial cancer, prostate cancer, prostatic hyperplasia, anovulatory infertility, melanoma, male hair loss, diffuse alopecia, hirsutism, endometriosis, or endometrial carcinomas by administering an effective amount of a compound according to claim 1.

14. (New) A method of treating osteoporosis, or pre-, peri- or post-menopause comprising administering an effective amount of a compound according to claim 1.

15. (New) A method of providing hormone replacement therapy comprising administering an effective amount of a compound according to claim 1.

16. (New) A method of treating breast cancer, endometrial cancer, prostate cancer, prostatic hyperplasia, anovulatory infertility, melanoma, male hair loss, diffuse alopecia, hirsutism, endometriosis, or endometrial carcinomas by administering an effective amount of a compound according to claim 1 to a patient in need thereof.--